In the Claims:

1. (currently amended) A label switching routing method for multi-protocol label switching (MPLS) optical communications network, comprising:

establishing a datapath as a sequence of labels between a source and a sink in said optical communications network, wherein each label includes a wavelength field containing ~~storing~~ a value of a wavelength frequency to be used for communication over a corresponding portion of the datapath associated with the label,

converting a first wavelength field of a first label to a second wavelength of a second label and forwarding the traffic to said sink according to said datapath, including updating the sequence of labels to replace the first label with the second label; and

transmitting said second wavelength label to said source.

2. (previously presented) A method as claimed in claim 1, wherein each label further includes a timeslot field storing a time value indicating one of a plurality of timeslots to be used for communication over the corresponding portion of the datapath associated with the label.

3. (previously presented) A method as claimed in claim 2, wherein said plurality of timeslots are of variable size.

4. (original) A method as claimed in claim 2, further comprising splitting said label received at an incoming interface into two outgoing composite labels.

5. (original) A method as claimed in claim 2, further comprising combining two incoming composite labels into one outgoing composite label.

6. (original) A method as claimed in claim 1, wherein said step of establishing a datapath is controlled by said multi-protocol label switching (MPLS) protocol.

7. (original) The routing protocol of claim 6, further including a constrained routing label distribution protocol (CR-LDP) for hierarchically controlling time, frequency, and statistically multiplexed paths and forming said composite layer in a single session.

8. (currently amended) An optical/time cross-connect (OTXC) for providing wavelength to wavelength conversion in a multi-protocol label switching (MPLS) optical communications network, comprising:

means for providing a first label having a wavelength field for containing ~~storing~~ a value of a first wavelength frequency to be used for communication over a corresponding portion of a datapath associated with the label means for converting the value of the first wavelength frequency associated with an incoming signal of the OTXC into a value of a second wavelength frequency associated with an outgoing signal of the OTXC;

means for updating a label associated with a communication path of the incoming signal to provide the value of the second wavelength frequency in the wavelength field of the label; and

means for forwarding the updated label to a source.

9. (original) The optical/time cross-connect of claim 8, wherein said means for converting are controlled by said multi-protocol label switching (MPLS) protocol.

10. (original) The optical/time cross-connect of claim 8, further including multiplexing means for providing statistical multiplexing, frequency division multiplexing, and time division multiplexing under the control of said MPLS protocol.

11. (original) The optical/time cross-connect of claim 8, wherein said OTXC further comprises means for assigning timeslots for a wavelength flowing back to the source whenever said wavelength arrives with an attached timeslot.

12. (original) The optical/time cross-connect of claim 11, wherein said timeslots have a variable size in accordance with the speed of the optical carriers connected to a signaling interface of said OTXC, and the label requested at said signaling interface.

13. (currently amended) A network communication system comprising a source node and a sink node coupled by an intermediate node, the network communications system comprising:

means for defining a datapath between the source node and the sink node, the datapath being represented as a sequence of labels, each label identifying a portion of the datapath between a pair of nodes in the datapath, and each label also containing ~~including~~ a value of a communication attribute of the portion of the datapath identified by the label, the communication attribute selected from a group consisting of wavelength, frequency, shim and time slot, and wherein a wavelength field in each label ~~is used for storing~~ contains the value of the communication attribute for the portion of the datapath identified by the label.